



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/884,009	06/18/2001	Bor-Ming Hsieh	MS1-749US	3405
22801	7590	06/28/2006	EXAMINER	
LEE & HAYES PLLC 421 W RIVERSIDE AVENUE SUITE 500 SPOKANE, WA 99201			WU, QING YUAN	
			ART UNIT	PAPER NUMBER
			2194	

DATE MAILED: 06/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/884,009

Applicant(s)

HSIEH, BOR-MING

Examiner

Qing-Yuan Wu

Art Unit

2194

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 April 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6, 8-11, 13-21 and 23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8-11, 13-21, and 23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.


Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.


WILLIAM THOMSON
SUPERVISORY PATENT EXAMINER

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 2/22/06, 4/24/06
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. Claims 1-6, 8-11, 13-21 and 23 are pending in the application.

Response to Arguments

2. Applicant's arguments, see pg. 9 line 18-pg. 10, line 3, of appeal brief filed 4/24/06, with respect to the definition of a run queue as defined by the applicant as a queue for "storing threads representing respective paths of execution through a computer-program (process) for execution by a computer," a thread defined as "a path of execution through a computer program application" and that "a path of execution through a computer program may be represented with machine language commands." The rejection based on the interpretation of an "SCSI command" as "threads" and "SCSI command queue" as "run queue" has been withdrawn.

Claim Rejections - 35 USC § 101

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. Claims 1-6, 8-11, 13-21 and 23 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claim 1 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The current focus of the Patent Office in regard to statutory inventions under 35 U.S.C. § 101 for method claims and claims that recite a judicial exception (software) is that the claimed invention recite a practical application. Practical application can be provided by

Art Unit: 2194

a physical transformation or a useful, concrete and tangible result. No physical transformation is recited and additionally, the result of the claim is “associating a second plurality of threads that is priority sorted with the run queue in a manner that maintains a priority sorted with the run queue in a manner that maintains a priority based scheduling semantic of the run queue” which is not a tangible result because the method steps do not specifically recite the execution of the threads.

Claims 2-6, 8-11 and 13-21 are rejected for similar reasons. As to claim 23, this claim is rejected for the same reason as claim 1 above, in addition, claim 23 does not produce a tangible result because the claim merely recites a run queue data structure and no result is produce.

As to claims 16-21 and 23, the claims are directed to a signal directly or indirectly by claiming a medium and the Specification recites evidence where the computer readable medium is defined as a “*signal*”. In that event, the claims are directed to a form of energy which at present the office feels does not fall into a category of invention. The medium according to the Specification is not limited to tangible embodiments, instead being defined as including both tangible embodiments (e.g., “computer storage media” including CD-ROM, ROM, RAM, magnetic tapes, etc) and intangible embodiments (e.g., “communications media” including signals transmitted over a network representing computer readable program code). As such, the claims are not limited to statutory subject matter and are therefore non-statutory. To overcome this type of 101 rejection the claims need to be amended to include only the physical computer media and not a transmission media or other intangible or non-functional media (The examiner suggests applicant to change “computer-readable storage medium” and “computer-readable medium” to “computer storage media” in the preamble to overcome the outstanding 35 U.S.C.

Art Unit: 2194

101 rejection). The following link on the World Wide Web is for the United States Patent And Trademark Office (USPTO) policy on 35 U.S.C. §101.

http://www.uspto.gov/web/offices/pac/dapp/opla/preognotice/guidelines101_20051026.pdf

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-6, 8-11, 13-21 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Young (U.S. Patent 6,609,161) in view of Applicant Admitted Prior Art (hereafter AAPA) (U.S. PG Pub 2002/0194249).

7. Young was cited in the last office action.

8. As to claim 23, Young teaches the invention substantially as claimed including managing a queue with a queue data structure, the queue data structure comprising [abstract, line 1]:

a first dimension data field comprising a first plurality of command blocks sorted with respect to command block priority [col. 2, lines 25-29; col. 3, lines 13-18; abstract; 275, Fig. 3B]; and

a second dimension data field comprising a second plurality of command blocks sorted based on command block priority, the second plurality of command blocks comprising a root thread and one or more other threads [col. 2, lines 30-35; SCBs 34, 167, 05, 270A-272A, Fig. 3B; col. 8, lines 30-36].

9. Young does not specifically teach a run queue or threads. However, AAPA teaches storing threads in a run queue for subsequent execution [AAPA, pg. 1, col. 2, lines 33-49].

10. It would have been obvious to one of an ordinary skill in the art at the time the invention was made, to have combined the teaching of Young with the teaching of AAPA to extend the functionality of Young's multi-dimensional queue to applied to scheduling of different tasks.

11. As to claim 1, this claim is rejected for the same reason as claim 23 above. In addition, Young as modified teaches the invention substantially as claimed including, associating a second plurality of threads that is priority sorted with the run queue in a manner that maintains a priority based scheduling semantic of the run queue [col. 3, lines 13-18; col. 6, lines 1-24; col. 7, lines 47-55; col. 8, lines 30-36; 270A, Fig. 3C].

12. Young as modified does not specifically teach in a deterministic amount of time equivalent to an amount of time to insert a single thread into the run queue. However, Young disclosed appending the target queue with SCSI control blocks (hereafter SCBs) remaining to be transmitted to the end of the common queue [col. 7, lines 36-55].

Art Unit: 2194

13. It would have been obvious to one of an ordinary skill in the art at the time the invention was made, to have recognized that the time required to associate/insert the plurality of threads in the run queue/common queue is equivalent to inserting a single thread in the run queue because only a single thread is being inserted (i.e. changes in common tail pointer).

14. As to claim 2, Young as modified teaches the invention substantially as claimed including wherein the second plurality of threads comprises a root thread, and wherein associating the second plurality of threads with the run queue further comprises inserting only the root thread into the run queue to represent the second plurality of nodes [col. 2, lines 33-35, 43-47; col. 3, lines 13-18].

15. As to claim 3, Young as modified does not specifically teach and inserting each thread in the second plurality of threads into the run queue independent of any additional other queue access. However, Young disclosed inserting SCBs from target queues into common queue [col. 7, lines 36-55]. It would have been obvious to one of an ordinary skill in the art at the time the invention was made, to have recognized that no other queues are being access when a preceding thread is inserted in to the run queue.

16. As to claim 4, this claim is rejected for the same reason as claim 2 above.

17. As to claim 5, this claim is rejected for the same reason as claim 2 above. In addition, Young as modified teaches the invention substantially as claimed including removing the root thread from the run queue; and responsive to removing the root thread, inserting a next thread of

Art Unit: 2194

the second plurality of threads into the run queue such that the priority based scheduling semantic of the run queue is preserved [col. 7, lines 36-55; Figs. 3B-3C].

18. As to claim 6, this claim is rejected for the same reason as claims 3 and 5 above.

19. As to claim 8, Young as modified teaches substantially the method for managing a run queue. Therefore Young as modified teaches substantially the system for implementing the method.

20. As to claim 9, this claim is rejected for the same reason as claim 3 above.

21. As to claim 10, this claim is rejected for the same reason as claim 1 above.

22. As to claim 11, this claim is rejected for the same reason as claim 2 above.

23. As to claim 13, this claim is rejected for the same reason as claim 23 above. In addition, Young as modified teaches the run queue being implemented in a linked list data structure [col. 2, lines 25-49; AAPA, paragraph 5, lines 1-4 and Fig. 1].

24. As to claims 14-15, these claims are rejected for the same reason as claims 5-6 above.

Art Unit: 2194

25. As to claims 16, Young as modified teaches substantially the method for managing a run queue. Therefore Young as modified teaches substantially the computer-program instructions for implementing the method.

26. As to claim 17, this claim is rejected for the same reason as claim 2 above.

27. As to claim 18, this claim is rejected for the same reason as claim 13 above.

28. As to claim 19, this claim is rejected for the same reason as claim 5 above.

29. As to claim 20, this claim is rejected for the same reason as claim 3 above.

30. As to claim 21, this claim is rejected for the same reason as claim 6 above.

31. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent 6,724,767, 6,501,731 to Chong et al., U.S. Patent 5,379,297 to Glover et al., U.S. Patent 5,440,553, 5,274,642 to Widjaja et al. teach multidimensional queue. Applied Operating System Concepts to Silberschatz teaches deterministic modeling.

Art Unit: 2194

32. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Qing-Yuan Wu whose telephone number is (571) 272-3776. The examiner can normally be reached on 8:30am-5:00pm.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Thomson can be reached on (571) 272-3718. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Qing-Yuan Wu

Examiner

Art Unit 2194


WILLIAM THOMSON
SUPERVISORY PATENT EXAMINER